

AMENDMENTS TO THE CLAIMS

Claim 1 (cancelled)

Claim 2 (currently amended) The ~~purified immunoglobulin polypeptide or antigen binding fragment~~ antibody of claim ~~[[1]]~~ 52, wherein said cancer cell is selected from the group consisting of cancer cells from adrenal gland tumors, AIDS-associated cancers, alveolar soft part sarcoma, astrocytic tumors, bladder cancer including but not limited to ~~[[()]]~~squamous cell carcinoma and transitional cell carcinoma~~[[()]]~~, bone cancer including but not limited to ~~[[()]]~~adamantinoma, aneurismal bone cysts, osteochondroma, osteosarcoma~~[[()]]~~, brain and spinal cord cancers, metastatic brain tumors, breast cancer, carotid body tumors, cervical cancer, chondrosarcoma, chordoma, chromophobe renal cell carcinoma, clear cell carcinoma, colon cancer, colorectal cancer, cutaneous benign fibrous histiocyctomas, desmoplastic small round cell tumors, ependymomas, Ewing's tumors, extrasketal myxoid chondrosarcoma, fibrogenesis imperfecta ossium, fibrous dysplasia of the bone, gallbladder and bile duct cancers, gestational trophoblastic disease, germ cell tumors, head and neck cancers, islet cell tumors, Kaposi's Sarcoma, kidney cancer including but not limited to ~~[[()]]~~nephroblastoma, papillary renal cell carcinoma~~[[()]]~~, leukemias, lipoma/benign lipomatous tumors, liposarcoma/malignant lipomatous tumors, liver cancer including but not limited to ~~[[()]]~~hepatoblastoma, hepatocellular carcinoma~~[[()]]~~, lymphomas, lung cancer, medulloblastoma, melanoma, meningiomas, multiple endocrine neoplasia, multiple myeloma, myelodysplastic syndrome, neuroblastoma, neuroendocrine tumors, ovarian cancer, pancreatic cancers, papillary thyroid carcinomas, parathyroid tumors, pediatric cancers, peripheral nerve sheath tumors, phaeochromocytoma, pituitary tumors, prostate cancer, posterior uveal melanoma, rare hematologic disorders, renal metastatic cancer, rhabdoid tumor, rhabdomyosarcoma, sarcomas, skin cancer, soft-tissue sarcomas, squamous cell cancer, stomach cancer, synovial sarcoma, testicular cancer, thymic carcinoma, thymoma, thyroid metastatic cancer, and uterine cancers including but not limited to ~~[[()]]~~carcinoma of the cervix, endometrial carcinoma, and leiomyoma~~[[()]]~~.

Claim 3 (withdrawn) An isolated nucleic acid sequence coding for the immunoglobulin polypeptide or antigen-binding fragment thereof of claim 1.

Claim 4 (withdrawn) The nucleic acid claim of claim 3, wherein the nucleic acid is operably linked to a promoter.

Claim 5 (withdrawn) The nucleic acid of claim 4, wherein the promoter and the nucleic acid are contained in an expression vector.

Claim 6 (withdrawn) The nucleic acid of claim 3, wherein the polypeptide is a monoclonal antibody.

Claim 7 (withdrawn) A cell line transfected, transformed or infected with a vector containing a nucleic acid of claim 3.

Claim 8 (withdrawn) A method of producing a substantially purified immunoglobulin polypeptide, or an antigen binding fragment thereof, comprising the steps of:

- a. Growing a cell line transformed with the nucleic acid of claim 3 under conditions in which the immunoglobulin polypeptide or antigen binding fragment is expressed; and
- b. Harvesting the expressed immunoglobulin polypeptide or fragment.

Claim 9 (withdrawn) The method of claim 8, wherein the cell line is a hybridoma.

Claim 10 (withdrawn) The method of claim 9, wherein the hybridoma is ATCC No. PTA-4220.

Claim 11 (withdrawn) The method of claim 8, wherein the immunoglobulin polypeptide is a monoclonal antibody

Claim 12 (currently amended) A pharmaceutical composition comprising a therapeutically effective dose of the purified immunoglobulin or antigen-binding fragment of claim [[1]] 26 and an additional therapeutic moiety, together with a pharmaceutically acceptable carrier.

Claim 13 (cancelled)

Claim 14 (cancelled)

Claim 15 (amended) An isolated cell line consisting of ATCC No. PTA-4220, ~~or progeny thereof.~~

Claim 16 (withdrawn) A method for delivering a chemotherapeutic agent to a cancer cell comprising administering a composition comprising an anti-PIPA antibody associated with the chemotherapeutic agent, wherein the cancer cell is selected from the group consisting of cancer cells from adrenal gland tumors, AIDS-associated cancers, alveolar soft part sarcoma, astrocytic tumors, bladder cancer (squamous cell carcinoma and transitional cell carcinoma), bone cancer (adamantinoma, aneurismal bone cysts, osteochondroma, osteosarcoma), brain and spinal cord cancers, metastatic brain tumors, breast cancer, carotid body tumors, cervical cancer, chondrosarcoma, chordoma, chromophobe renal cell carcinoma, clear cell carcinoma, colon cancer, colorectal cancer, cutaneous benign fibrous histiocytomas, desmoplastic small round cell tumors, ependymomas, Ewing's tumors, extraskeletal myxoid chondrosarcoma, fibrogenesis imperfecta ossium, fibrous dysplasia of the bone, gallbladder and bile duct cancers, gestational trophoblastic disease, germ cell tumors, head and neck cancers, islet cell tumors, Kaposi's Sarcoma, kidney cancer (nephroblastoma, papillary renal cell carcinoma), leukemias, lipoma/benign lipomatous tumors, liposarcoma/malignant lipomatous tumors, liver cancer (hepatoblastoma, hepatocellular carcinoma), lymphomas, lung cancer, medulloblastoma, melanoma, meningiomas, multiple endocrine neoplasia, multiple myeloma, myelodysplastic syndrome, neuroblastoma, neuroendocrine tumors, ovarian cancer, pancreatic cancers, papillary thyroid carcinomas, parathyroid tumors, pediatric cancers, peripheral nerve sheath tumors, pheochromocytoma, pituitary tumors, prostate cancer, posterior uveal melanoma, rare hematologic disorders, renal metastatic cancer, rhabdoid tumor, rhabdomyosarcoma, sarcomas, skin cancer, soft-tissue sarcomas, squamous cell cancer, stomach cancer, synovial sarcoma, testicular cancer, thymic carcinoma, thymoma, thyroid metastatic cancer, and uterine cancers (carcinoma of the cervix, endometrial carcinoma, and leiomyoma).

Claim 17 (withdrawn) The method of claim 16, wherein the chemotherapeutic agent is administered to an individual.

Claim 18 (withdrawn) The method of claim 16, wherein the hybridoma is ATCC No. PTA-4220 or progeny thereof.

Claim 19 (withdrawn) A method of inhibiting growth of cancer cells in an individual comprising administering to the individual an effective amount of a composition comprising an anti-PIPA antibody associated with a chemotherapeutic agent to the individual, wherein the cancer cells are selected from the group consisting of cancer cells from adrenal gland tumors, AIDS-associated cancers, alveolar soft part sarcoma, astrocytic tumors, bladder cancer (squamous cell carcinoma and transitional cell carcinoma), bone cancer (adamantinoma, aneurismal bone cysts, osteochondroma, osteosarcoma), brain and spinal cord cancers, metastatic brain tumors, breast cancer, carotid body tumors, cervical cancer, chondrosarcoma, chordoma, chromophobe renal cell carcinoma, clear cell carcinoma, colon cancer, colorectal cancer, cutaneous benign fibrous histiocytomas, desmoplastic small round cell tumors, ependymomas, Ewing's tumors, extraskeletal myxoid chondrosarcoma, fibrogenesis imperfecta ossium, fibrous dysplasia of the bone, gallbladder and bile duct cancers, gestational trophoblastic disease, germ cell tumors, head and neck cancers, islet cell tumors, Kaposi's Sarcoma, kidney cancer (nephroblastoma, papillary renal cell carcinoma), leukemias, lipoma/benign lipomatous tumors, liposarcoma/malignant lipomatous tumors, liver cancer (hepatoblastoma, hepatocellular carcinoma), lymphomas, lung cancer, medulloblastoma, melanoma, meningiomas, multiple endocrine neoplasia, multiple myeloma, myelodysplastic syndrome, neuroblastoma, neuroendocrine tumors, ovarian cancer, pancreatic cancers, papillary thyroid carcinomas, parathyroid tumors, pediatric cancers, peripheral nerve sheath tumors, pheochromocytoma, pituitary tumors, prostate cancer, posterior uveal melanoma, rare hematologic disorders, renal metastatic cancer, rhabdoid tumor, rhabdomyosarcoma, sarcomas, skin cancer, soft-tissue sarcomas, squamous cell cancer, stomach cancer, synovial sarcoma, testicular cancer, thymic carcinoma, thymoma, thyroid metastatic cancer, and uterine cancers (carcinoma of the cervix, endometrial carcinoma, and leiomyoma).

Claim 20 (withdrawn) The method of claim 19, wherein the chemotherapeutic agent is delivered into the cancer cells.

Claim 21 (withdrawn) The method of claim 19, wherein the anti-PIP antibody is a monoclonal antibody expressed by hybridoma ATCC No. PTA-4220 or progeny thereof.

Claim 22 (withdrawn) A method for detecting the presence or absence of a cancer cell in an individual comprising contacting cells from the individual with an anti-PIPA antibody, and detecting a complex of PIPA from the cells and the antibody, if any, wherein the cancer cell is selected from the group consisting of cancer cells from adrenal gland tumors, AIDS-associated cancers, alveolar soft part sarcoma, astrocytic tumors, bladder cancer (squamous cell carcinoma and transitional cell carcinoma), bone cancer (adamantinoma, aneurismal bone cysts, osteochondroma, osteosarcoma), brain and spinal cord cancers, metastatic brain tumors, breast cancer, carotid body tumors, cervical cancer, chondrosarcoma, chordoma, chromophobe renal cell carcinoma, clear cell carcinoma, colon cancer, colorectal cancer, cutaneous benign fibrous histiocytomas, desmoplastic small round cell tumors, ependymomas, Ewing's tumors, extraskeletal myxoid chondrosarcoma, fibrogenesis imperfecta ossium, fibrous dysplasia of the bone, gallbladder and bile duct cancers, gestational trophoblastic disease, germ cell tumors, head and neck cancers, islet cell tumors, Kaposi's Sarcoma, kidney cancer (nephroblastoma, papillary renal cell carcinoma), leukemias, lipoma/benign lipomatous tumors, liposarcoma/malignant lipomatous tumors, liver cancer (hepatoblastoma, hepatocellular carcinoma), lymphomas, lung cancer, medulloblastoma, melanoma, meningiomas, multiple endocrine neoplasia, multiple myeloma, myelodysplastic syndrome, neuroblastoma, neuroendocrine tumors, ovarian cancer, pancreatic cancers, papillary thyroid carcinomas, parathyroid tumors, pediatric cancers, peripheral nerve sheath tumors, pheochromocytoma, pituitary tumors, prostate cancer, posterior uveal melanoma, rare hematologic disorders, renal metastatic cancer, rhabdoid tumor, rhabdomyosarcoma, sarcomas, skin cancer, soft-tissue sarcomas, squamous cell cancer, stomach cancer, synovial sarcoma, testicular cancer, thymic carcinoma, thymoma, thyroid metastatic cancer, and uterine cancers (carcinoma of the cervix, endometrial carcinoma, and leiomyoma).

Claims 23-25 (cancelled)

Claim 26 (new): An antibody PIP produced by a host cell with a deposit number of ATCC No. PTA-4220.

Claim 27 (new): A chimeric antibody comprising the variable regions of a light chain and a heavy chain of the antibody PIP of claim 26 and constant regions of a light chain and a heavy chain of a human antibody, wherein said antibody has or retains the binding specificity of said antibody PIP.

Claim 28 (new): A humanized antibody comprising each of three CDRs from the light chain of the antibody PIP of claim 26 and each of three CDRs from the heavy chain of the antibody of PIP of claim 26, wherein said antibody has or retains the binding specificity of said antibody PIP.

Claim 29 (new): A fragment of the PIP antibody of claim 26, wherein the fragment comprises the variable region of a heavy chain and the variable region of a light chain of said antibody PIP, and wherein said fragment has or retains the binding specificity of said antibody PIP.

Claim 30 (new): A heavy chain of the antibody PIP of claim 26.

Claim 31 (new): A light chain of the antibody PIP of claim 26.

Claim 32 (new): A light chain comprising the three CDRs of a heavy chain of the antibody PIP of claim 26.

Claim 33 (new): A single-chain Fv comprising the variable regions of the light and heavy chains of the antibody PIP of claim 26, wherein said single-chain Fv has or retains the binding specificity of said antibody PIP.

Claim 34 (new): A kit comprising an antibody according to any one of claims 26, 27, and 28.

Claim 35 (new): A composition comprising the antibody of claim 27, wherein the antibody is linked to a therapeutic agent.

Claim 36 (new): The pharmaceutical composition comprising the antibody of claim 35 and a pharmaceutically acceptable excipient.

Claim 37 (new): A fragment of a chimeric antibody according to claim 27, wherein said fragment has or retains the binding specificity of said antibody PIP.

Claim 38 (new): A composition comprising the antibody of claim 28, wherein the antibody is linked to a therapeutic agent.

Claim 39 (new): The pharmaceutical composition comprising the antibody of claim 38 and a pharmaceutically acceptable excipient.

Claim 40 (new): A fragment of a humanized antibody according to claim 28, wherein said fragment has or retains the binding specificity of said antibody PIP.

Claim 41 (new): The fragment of claim 29, wherein the fragment is a Fab.

Claim 42 (new): The fragment of claim 29, wherein the fragment is a Fab'.

Claim 43 (new): The fragment of claim 29, wherein the fragment is a F(ab')₂.

Claim 44 (new): The fragment of claim 29, wherein the fragment is a Fv.

Claim 45 (new): A composition comprising the fragment of any one of claims 29, 37, 40-44, wherein the fragment is linked to a therapeutic agent.

Claim 46 (new): A kit comprising the fragment according to any one of claims 29, 37, 40-44.

Claim 47 (new): A method of generating a fragment according to claim 29 comprising expressing one or more polynucleotides encoding the fragment, and purifying the fragment, thereby generating the fragment.

Claim 48 (new): A method of generating antibody PIP comprising culturing the isolated cell line according to claim 15 under conditions that allow production of antibody PIP, and purifying the antibody, thereby generating antibody PIP.

Claim 49 (new): A method of generating the antibody of claim 27 or 28 comprising expressing one or more polynucleotides encoding the antibody of claim 27 or 28 respectively, and purifying the antibody, thereby generating the antibody.

Claim 50 (new): The antibody of claim 26, wherein said antibody has the ability to bind to an antigen target on a cancer cell.

Claim 51 (new): The antibody of claim 26, wherein said antibody has the ability to bind to an antigen target that is exposed on the surface of a living cell *in vitro* or *in vivo*.